

WHAT IS CLAIMED IS:

1 In an electronic mail (e-mail) system, a method for processing a plurality of e-mail messages that are being sent to recipients at various destination domains, the method comprising:

5 establishing a plurality of queues in the system, zero or more of these being specific queues for handling mail to a specific set of domains, and one being a general queue for transferring e-mail to domains not handled by specific queues;

receiving at the system a request to process for transfer a plurality of outbound e-mail messages, each e-mail message specifying delivery to at least one recipient at a particular
10 domain; and

for each given e-mail message, processing the given e-mail message by:

determining what domain the given e-mail message is destined for,

if the determined domain for the given e-mail message is a specific domain
handled by a corresponding specific queue, assigning the given e-mail message to the
15 corresponding specific queue for transferring the given e-mail to said specific domain,
otherwise assigning the given e-mail message to said general queue, and

without waiting for confirmation that the given e-mail message has been
successfully processed for transfer to another system, proceeding to process the next one of
the e-mail messages.

20 2 The method of claim 1, wherein said system comprises one general queue and optional specific queues.

3 The method of claim 1, wherein said at least one specific queue only handles e-mail messages that are destined for the specific queue's corresponding domain.

4 The method of claim 1, wherein said general queue handles all e-mail messages
25 that are not processed by said at least one specific queue.

5 The method of claim 1, wherein each queue is associated with at least one message transfer agent (MTA) processing thread that establishes a connection with a recipient MTA.

6 The method of claim 5, wherein at least one queue is associated with a set
5 comprising a plurality of MTA processing threads.

7 The method of claim 6, wherein said sets of MTA processing threads is dynamically configurable, for optimizing resources allocated for a given queue.

8 The method of claim 1, wherein said system receives said plurality of outbound e-mail messages from at least one composer program, which automatically composes e-mail
10 messages based on database information.

9 The method of claim 1, wherein said system receives said plurality of outbound e-mail messages via Simple Mail Transport Protocol (SMTP).

10 The method of claim 1, further comprising:
creating at least one clone e-mail message upon encountering an e-mail message
15 addressed to more than one recipient; and
processing each clone for transfer.

11 The method of claim 10, wherein each clone includes a reference to contents for its corresponding e-mail message, so that storage of e-mail contents is not duplicated.

12 The method of claim 1, further comprising:
20 in the event that a particular e-mail message cannot be successfully processed upon an initial attempt, routing the particular message to another message transport agent (MTA) which is to re-attempt transport.

13 An electronic mail (e-mail) system providing parallel processing of e-mail messages, the system comprising:

a plurality of queues for processing incoming e-mail messages, at least one queue being designated as a specific queue for processing e-mail messages destined for a specific domain;

5 a processing thread for receiving incoming e-mail messages that are to be transferred to another system, and assigning each incoming e-mail message to a particular queue based on what domain the incoming e-mail message is destined for; and

wherein a given e-mail message is assigned to said specific queue when the given e-mail message is destined for said specific domain.

14 The system of claim 13, wherein each queue controls a set of one or more message transfer agent (MTA) processing threads, each MTA processing threads capable of performing work to transfer an e-mail message to an MTA on another system.

15 The system of claim 14, wherein the actual number of MTA processing threads employed by a given queue is controlled at runtime.

16 The system of claim 14, wherein each MTA processing thread is capable of establishing a connection to an MTA on another system.

17 The system of claim 15, wherein control of the actual number of MTA processing threads employed by a given queue is based, at least in part, on how many e-mail messages are posted to the given queue at runtime.

18 The system of claim 15, wherein control of the actual number of MTA processing threads employed by a given queue is subject to a maximum limit.

19 The system of claim 13, wherein one of said queues comprises a general queue for processing e-mail messages that are destined for other domains.

20 The system of claim 19, wherein said general queue controls a set of message transfer agent (MTA) processing threads, and wherein each said MTA processing thread of the general queue is capable of transferring an e-mail message to an MTA at a domain that is different than other domains for e-mail messages processed by the set.

21 An improved e-mail system, the improvement comprising:
dividing incoming e-mail messages that are to be processed for transfer into different
groups, based on what domain each e-mail message is destined for;
establishing a first queue and accompanying processing resources for processing
5 transfer of e-mail messages to a frequently encountered domain; and
establishing a second queue and accompanying processing resources for processing
transfer of e-mail messages to less-frequently encountered domains.

22 The system of claim 21, wherein each queue is associated with a set of one or
more message transfer agent (MTA) processing threads, each capable of transferring an e-
10 mail message to recipient's domain.

23 The system of claim 22, wherein the set of MTA processing threads for said first
queue is dedicated to transferring e-mail messages only to said frequently encountered
domain.

24 The system of claim 22, wherein the set of MTA processing threads for said
15 second queue may transfer e-mail messages to different domains.

25 The system of claim 22, further comprising a connection cache for storing
information about connections that have been made to other domains.